

USSR

UDC 621.039.526:621.039.524.034.3

NESTERENKO, V. B., TVERKOVKIN, B. YE., SHINKEVICH, O. S.

"Prospects for Application of Dissociating Gases as the Heat Exchange Agents of Fast Neutron Nuclear Reactors"

Dissotsiiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 36-41 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U193)

Translation: Results are presented from thermal calculation of the cores of fast neutron nuclear reactors with dissociating heat exchange agents  $H_2O_4$ ,  $Al_2Cl_6$  and  $Al_2Br_6$ . They are compared with the heat engineering characteristics of the water vapor and sodium reactor. There is 1 illustration, 1 table and a 4-entry bibliography.

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UDC 621.039.524.034.3

NESTERENKO, V. B., TVERKOVKIN, B. YE., SHINKEVICH, O. S., PLESHCHENKOV, G. A.

"Calculating the Parameters of a Chemically Reacting Flow in a Heated Channel"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V. sb.  
(Dissociating Gases as Heat Transfer Agents and the Working Medium of Power  
Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 238-252  
(from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U192)

Translation: A one-dimensional procedure for calculating the parameters of a chemically reacting stationary flow in a heated channel is proposed. The results of numerical calculation are presented, and the effect of the kinetics of chemical reactions on the average parameters of the chemically reacting flow is analyzed in the example of the dissociating system  $H_2O_4 + 2NO_2 \rightleftharpoons 2H_2O + 2NO + O_2$ . There are 4 illustrations, 1 table and a 6-entry bibliography.

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USSR

UDC 615.28:547.831

SHINKORENKO, S. V., PILYUGIN, T. G., SIDORCHUK, I. I., and YAVORSKIY, V. M.,  
University of Chernovtsy, Chernovtsy Medical Institute

"Synthesis and Some Biological Properties of Quinaldinium Azomethines"  
Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 1, Jan 72, pp 25-29

Abstract: Studying antimicrobial activity of various preparations, a series of azomethine derivatives of quinaldine was synthesized containing alkyl and aryl groups at the nitrogen heteroatom, various substituents at the quinaldine moiety and a free or a substituted amino group at the benzene ring. Reaction of equimolar quantities of quaternary quinaldinium salts with aromatic nitro compounds takes place in ethanol containing catalytic amounts of piperidine. The products are strongly colored crystalline materials soluble in common organic solvent, insoluble in benzene, ether, and water; their physical properties are tabulated. The azomethines synthesized showed a wide spectrum of antimicrobial and antifungal activity, especially towards strains resistant to antibiotics. The disinfecting activity of some of these compounds exceeds the activity of phenol.

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USSR

UDC 621.382.3

MIRONOV, V.A., NOVOSEL'TSEV, V.YE., PASYNKOV, V.V., SHINKOV, A.D.

"Calculation Of Time Constant Of Feedback Circuit Of Planar Transistor"

Izv. Leningr. elektrotekhn. in-ta (Journal Of The Leningrad Electrical Engineering Institute), 1972, Issue 108, pp 100-113 (from RZh:Elektronika i yeye primen-  
iye, No 11, Nov 1972, Abstract No 11B253)

Translation: A calculation is given of the dependence of the time constant of a feedback circuit on the technological and structural parameters of a planar structure transistor. A grid electrical model was used in which a planar transistor was taken as two-dimensional, i.e., the base region was considered as a thin conductive layer. A comparison of the calculated values of the time constant with those measured on an actual transistor shows that a divergence between the experimental and analytical curve is observed only in the area of large currents.  
5 ill. N.K.

1/1

172 009  
TITLE--PASTE FOR POLISHING COATINGS -U- UNCLASSIFIED  
AUTHOR-(03)-BERZINS, R., OGILETS, M.V., SHINT, A.A. PROCESSING DATE--16OCT70  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 264,574  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--03MAR70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--PATENT, WAX, PASTE, ETHYLENE GLYCOL, ETHER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1085  
CIRC ACCESSION NO--AA0116551  
STEP NO--UR/0482/70/000/000/0000/0000  
UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AA0116551  
ABSTRACT/EXTRACT--(U; GP-0-

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT. THE TITLE PASTE HAS THE FOLLOWING  
COMP. : AEROSIL 4-10, MIXT. OF POLYETHYLENE GLYCOL ETHERS OF HIGHER  
FATTY ALCS. 4-7, BLEACHED MONTAN WAX 3-13, PARAFFIN 3-7, CERESIN 1-3,  
APINDLE OIL 1-4, PROTECTIVE LUBRICANT (CONSISTING OF 75PERCENT NITRATED  
OIL, 1.5PERCENT OXIDIZED PETROLATUM, 5PERCENT AL COMPD. AND 5PERCENT  
PARAFFIN) 1-3, TECH. PH SUB2 O 0.5-1, WHITE SPIRITS 30-8, AND H SUB2 O  
25-41.5PERCENT.  
FACILITY: SPECIAL CONSTRUCTION BUREAU OF  
CHEMIZATION OF THE NATIONAL ECONOMY, LATVIAN S.S.R.

UNCLASSIFIED

USSR

UDC: 621.791.763.1:669.295:621.357.7

BONDAREV, V. V., Candidate of Technical Sciences, and SHIRYAYEV, A. Ya.,  
Doctor of Technical Sciences

"Spot Welding Titanium Ground Contacts"

Moscow, Svarochnoye proizvodstvo, No 5, 1971, p 34

Abstract: The authors present data on spot welding grounding contacts made from titanium and its alloys with various types of electroplated coatings. The results show that spot welding produces a reliable electric contact between titanium and radio parts where the titanium ground contacts are first electroplated with subsequent soldering to them of various parts and conductors using low-temperature solders. Original article: one table, one figure, and three bibliographic entries.

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USSR

UDC 613.644+613.63:547.262]:612.8

SHIPACHEVA, A. D., Moscow Scientific Research Institute of Hygiene imeni  
F. F. Erisman

"The Synergistic Effect of Industrial Ultrasound and Ethanol on the Nervous  
System of White Rats"

Moscow, Gigiyena i Sanitariya, No 10, Oct 1970, pp 27-30

Abstract: The combined effect of low-frequency ultrasound waves and toxic substances on workers is of great concern. The combination of ultrasound with ethanol is frequently encountered in industry, since ethanol is used in the ultrasonic cleaning of parts. Both ultrasound waves and ethanol strongly affect the central nervous system. White rats were subjected to ultrasound and ethanol together and separately, and the effects on the central nervous system were studied by observing shifts in the latent period of the unconditioned defensive reflex. The combined effect of both agents, regardless of their characteristics, produced more pronounced shifts than did either factor separately. The type of effect observed is determined by the ultrasound. Preventive measures should include the shielding of workers in industrial enterprises against exposure to ultrasonic waves.

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1/2 015  
TITLE--STUDY OF COMPOUNDS OF TIN WITH GROUP IV ELEMENTS BY THE NUCLEAR  
GAMMA RESONANCE METHOD -U-  
AUTHOR-(04)-PEREPECH, K.V., SEREGIN, P.P., SHIPATOV, V.T., BOLTAKS, B.I.  
COUNTRY OF INFO--USSR  
SOURCE--IZVEST. AKAD. NAUK SSSR, NEORG. MATERIALY, APR. 1970, 6, (4),  
818-819  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--GAMMA RADIATION, TIN COMPOUND, CHEMICAL BONDING, SPECTROSCOPIC  
ANALYSIS, SELENIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/1448  
CIRC ACCESSION NO--AP0130381  
STEP NO--UR/0363/70/006/004/0818/0819  
UNCLASSIFIED

2/2 015  
CIRC ACCESSION NO--AP0130381 UNCLASSIFIED  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE NUCLEAR GAMMA RESONANCE  
SPECTRA OF A NUMBER OF COMPOUNDS OF SN WITH GROUP IV ELEMENTS (SNSE,  
SNTE, ETC.) WERE STUDIED AND INTERPRETED IN TERMS OF THE CHEMICAL SHIFT  
AND QUADRUPOLE SPLITTING OF THE CORRESPONDING MATERIALS. THUS IN THE  
CASE OF THE DICHALCOGENIDES THE CHEMICAL SHIFT DIMINISHED WITH  
INCREASING IONICITY OF THE CHEMICAL BOND, AS PREDICTED BY THEORY. NO  
TRACE OF THE COMPOUND SN SUB2 SE SUB3 WAS FOUND, ONLY A SUPERPOSITION OF  
THE SPECTRA OF SNSE AND SNSE SUB2.

PROCESSING DATE--27NOV70

UNCLASSIFIED

1/3 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--MOSSBAUER EFFECT IN AN ARSENIC, SELENIUM, TIN SEMICONDUCTOR SYSTEM  
-U-  
AUTHOR--(G4)-BCRISOVA, Z.U., VASILYEV, L.N., SEREGIN, P.P., SHIPATOV, V.I.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 533-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ARSENIC, SELENIUM, TIN, GLASS COMPOSITION, VACUUM MELTING,  
SEMICONDUCTOR CRYSTAL, MOSSBAUER SPECTRUM  
CCNTRCL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1794 STEP NO--UR/0449/70/004/003/0533/0536  
CIRC ACCESSION NO--AP0118763  
UNCLASSIFIED

2/3 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0118763

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VACUUM MELTING WAS USED TO SYNTHESIZE A NO. OF AS, SE, SN GLASSES, HAVING THE COMPN. AS SUB1.0 SE SUBX SN SUBY, WHERE X EQUALS 0.8-9.0 AND GAMMA EQUALS 0.015-2.30. THE PRIME119 SN NUCLEUS WAS THE ONE UTILIZED TO DET. ISOMER SHIFT AND QUADRUPOLE SPLITTING BY MOESSBAUER SPECTROSCOPY. TO ACT AS STDS., ALL OF THE KNOWN BINARY COMPODS. BETWEEN SN PLUS AS AND SE WERE SYNTHESIZED SN SUB6 AS, SN SUB3 AS SUB2, SN SUB4 AS SUB3, SNAS, SN SUB3 AS SUB4, SN SUB2 AS SUB3, SNSE, SNSE SUB2, AND SN SUB2 SE SUB3. THE LAST COMPOD. MAY NOT EXIST AS A SEP. HOIETY, SINCE ITS SPECTRUM IS PRECISELY THE SAME AS THE SUPERIMPOSED SPECTRA OF SNSE AND SNSE SUB2. THE TERNARY ALLOYS OF AS, SE, AND SN ARE NOT SPECIFIC COMPODS. WITH UNIQUE STRUCTURES. IN THE VITREOUS AREAS OF THE ALLOY, ONLY SN(IV) WAS FOUND. IN SUCH REGIONS, EVEN WHEN ALL OF THE SN WAS THE 119 ISOMER, NO CHARACTERISTIC SN(II) LINES WERE FOUND IN THE SPECTRUM. FOR THE SERIES OF ALLOYS CHARACTERIZED BY ASSE SUB0.8 SN SUBY, ASSE SUB1.0 SN SUBY, AND ASSE SUB1.5 SN SUBY, BOTH SN(II) AND SN(IV) LINES WERE FOUND IN THE SPECTRUM TAKEN AT THE CRYST. REGIONS. AS THE SN CONTENT OF THESE REGIONS WAS INCREASED, THE SN(IV) LINES TEND TO DISAPPEAR AND AS THE PERCENT SN IS FURTHER INCREASED, IN ADDN. TO THE SPECTRUM CORRESPONDING TO CRYST. SNSE, FURTHER LINE CORRESPONDING TO A SN-AS COMPO. BEGIN TO APPEAR. IN CRYSTO. GLASS ALLOYS OF THE ENRICHED SE TYPE, SUCH AS ASSE SUB2.5 SN SUBY, ASSE SUB4.0 SN SUBY, AND ASSE SUB9.0 SN SUBY, ONLY SN(IV) LINES ARE FOUND IN THE MOESSBAUER SPECTRUM WITH THE ISOMER SHIFT CORRESPONDING TO CRYST. SNSE SUB2.

UNCLASSIFIED

3/3 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0118763

ABSTRACT/EXTRACT--NOT, IN A POLYCRYST. ALLOY, SUCH AS ASSE SUB2.5 SN SUB1.5, SN(II) LINES ARE FOUND WITH AN ISOMER SHIFT CHARACTERISTIC FOR CRYST. SNSE. SPECIFIC GLASS COMPNS. WERE ANNEALED TO PROMOTE A GREATER DEGREE OF CRYSTALLINITY. ASSE SUB2.5 SN SUB0.4 GLASS AFTER BEING ANNEALED FOR 1500 HR AT 200DEGREES GAVE RISE TO THE CHARACTERISTIC SNSE SUB2 SPECTRUM, WHILE ASSE SUB1.5 SN SUB0.1, SUBJECTED TO AN ANNEAL AT 250DEGREES FOR 750 HR GAVE RISE TO THE SNSE SPECTRUM. X RAY INVESTIGATION OF THESE SAMPLES CONFIRMED THE RESULTS OF THE MOESSBAUER STUDY. IN CHALCOGENIDE GLASSES OF THIS SYSTEM, SN IS TETRAVALENT BONDED ONLY TO SE AND THE STRUCTURE IS ROUGHLY TETRAGONAL WITH A COORDINATION NO. OF 6. ALTHOUGH THERE WAS NO UNIQUE STRUCTURE IN THESE TERNARY COMPNS. A UNIT STRUCTURE, SE SUB3 SN,SE,ASSE SUB2, DOES EXIST IN THE VITREOUS PHASE TO SOME DEGREE.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--USE OF THE MOESSBAUER EFFECT AND EPR IN STUDYING THE ACTION OF  
PROTON IRRADIATION ON IRON OXALATES -U-  
AUTHOR-(04)-YEREMIN, L.P., SHIPATOV, V.T., TARASOV, V.A., SEREGIN, P.P.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 185-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MOSSBAUER EFFECT, EPR, IRON COMPOUND, OXALATE, PROTON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/0856 STEP NO--UR/0456/70/004/002/0185/0186  
CIRC ACCESSION NO--AP0118032  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118032

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF IRRADN OF FE OXALATES BY 5-MEV PROTONS WAS STUDIED. THE DOSE VARIED (0.7-7) TIMES 10 PRIME22 EV-G. THE MOESSBAUER EFFECT WAS STUDIED AT 295DEGREE SK. WITH INCREASING DOSE THE FE(III) OXALATE (I) CHANGED COLOR FROM GREEN TO YELLOW. THE INTENSITY OF THE LINES CORRESPONDING TO THE QUADRUPOLE SPLITTING OF FE(II) INCREASED IN THE MOESSBAUER SPECTRA. AT 7 TIMES 10 PRIME22 EV-G ONLY FE PRIME2 POSITIVE IONS ARE PRESENT. COMPARISON OF THE I SPECTRA WITH THAT OF FE(III) OXALATE (II) THAT WAS IRRADIATED TO 7 TIMES 10 PRIME22 EV-G SHOWED THAT THE CHEM. SHIFT AND THE QUADRUPOLE SPLITTING OF BOTH SPECTRA ARE SIMILAR AND THAT THE IRRADN. BY PROTONS FORMS II. THE CONVERSION IS DUE TO THE STRONG REDUCING ACTION OF C SUB2 O SUB4 PRIME2 NEGATIVE ANIONS SURROUNDING THE FE(III) ION. THE DECREASE IN THE EFFECT OBSD. IN THE IRRADN. OF I WITH UP TO 7 TIMES 10 PRIME22 EV-G IS DUE TO THE DESTRUCTION OF THE CRYSTAL STRUCTURE OF INITIAL I AND THE FORMATION OF A POROUS STRUCTURE OF II CHARACTERIZED BY A LOWER MOESSBAUER COEFF. FACILITY: NAUCH-ISSLED. KHIM. INST., LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 028

UNCLASSIFIED

PROCESSING DATE--16OCT70  
TITLE--MOESSBAUER EFFECT IN TIN IMPURITY ATOMS IN SILVER HALIDES -U-

AUTHOR--(04)-YEFIMOV, A.A., BONDAREVSKIY, S.I., SEREGIN, P.P., SHIPATOV,  
V.T.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 949-50

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--MOSSBAUER EFFECT, SILVER COMPOUND, HALIDE, IODIDE, CHLORIDE,  
DEBYE TEMPERATURE, EMISSION SPECTRUM, SPECTROSCOPY, TIN, METAL IMPURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1288

STEP NO--UR/0181/70/012/003/0949/0950

CIRC ACCESSION NO--AP0116750

UNCLASSIFIED



2/2 028

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116750

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STATE OF SN ATOMS WAS STUDIED IN AGCL AND AGI BY MOESSBAUER EMISSION SPECTROSCOPY USING PRIME119 SN PRIMEM. SN WAS INTRODUCED BY MELTING THE ABOVE SALTS WITH METALLIC PRIME118 SN THEN IRRADIATING WITH AN INTEGRAL FLUX OF THERMAL NEUTRONS (2 TIMES 10 PRIME21 N-CM PRIME21). THE SPECIMENS OBTAINED WERE MOESSBAUER SOURCES AND CA STANNATE WAS THE ABSORBER. CONC. OF SN DID NOT EXCEED 5 TIMES 10 PRIME18 -CC. THE MAGNITUDE OF THE CHEM. SHIFT OF PRIME119 SN PRIMEM IN AGCL AND AGI CORRESPONDS TO THE PRESENCE OF ONLY SN PRIME4POSITIVE IONS. IT CAN BE ASSUMED THAT SN PRIME4POSITIVE ION IS IN INTERSTIAL LOCATIONS AND SURROUNDED BY 4 CATIONIC VACANCIES. ANOTHER POSSIBILITY IS THAT SN PRIME4POSITIVE ION IS LOCATED AT CATIONIC SITES AND FORMS ASSOCNS. WITH 3 CATIONIC VACANCIES. THIS IS CONFIRMED BY THE BROADENING OF THE MOESSBAUER SPECTRA. THE EFFECTIVE DEBYE TEMPS. WERE CALCD. FROM THE MOESSBAUER COEFF.

UNCLASSIFIED

72 013  
UNCLASSIFIED  
Oxidative regeneration of a platinum reforming catalyst -U-  
PROCESSING DATE--02.01.70  
UICDP-(05)-MASLYANSKIY, G.N., IVANYUKOV, D.V., KAMINSKIY, E.F., FEDOROV,  
A.P., SHIPILIN, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. TEKHNOL. TOPL. KASEL 1970, 15431 5-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
CIPIC TAGS--CATALYST REGENERATION, PLATINUM, HYDROCARBON  
COMBUSTION/LOJAP64 CATALYST  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/1492  
STEP NO--UP/0065/70/015/003/0005/0008  
CIRC ACCESSION NO--AP0112486  
UNCLASSIFIED

2/2- 013

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112486

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO MINIMIZE THE LOSS OF CL IN  
PT-AL SUB2 G SUB3 CATALYST AP64 PROMOTED WITH CL, THE SYSTEM WAS  
EVACUATED TO 50-60 MM BEFORE REGENERATION. DURING REGENERATION, H SUB2  
G FORMED WAS REMOVED FROM THE CIRCULATING GASES. THE DURATION OF THE  
1ST REGENERATION STEP OF HYDROCARBON COMBUSTION WAS GREATLY REDUCED.  
THE AMT. OF H SUB2 G FORMED DURING REGENERATION WAS THUS DECREASED.

UNCLASSIFIED

USSR

UDC: 620.171.2

ŠKLYAROV, N. M., KONONCHUK, N. I., ISHCHENKO, I. I., POGREBANYAK, A. D.,  
LOZITSKIY, L. P., SHIPIL', V. Ya., LAPITSKIY, Yu. A., SINAYSKIY, B. N.,  
KUFAYEV, V. N., Kiev

"Determination of Durability of Heat-Resistant Alloys in Unstable Operating  
Modes Considering Brief Overloads"

Kiev, Problemy Prochnosti, No 3, Mar 73, pp 100-104.

Abstract: The specific features of application of the linear hypothesis of addition of damage during calculation and accelerated experimental determination of the guaranteed durability of parts operating with brief overloads during individual stages in the program of unstable loading with static and variable loads are studied, as well as problems of adjustment of the corresponding calculation characteristics for heat-resistant alloys. The concept developed by the authors is in that the share of durability expended at any moment is determined by successive addition of its parts for stages of the program under the combined influence of loads and temperatures in a quasi-stable mode for each stage; the sets of long-term static strength and endurance characteristics are utilized, considering the influence of the loading prehistory and the corresponding limiting curves for various

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SKLYAROV, N. M., et al, Kiev, Problemy Prochnosti, No 3, Mar 73, pp 100-104  
temperatures and durabilities. The spectrum of loads is studied in combination with the sequence of their application, i.e., in time.

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USSR

UDC 539.375

KONONCHUK, N. I., SHIPIL', V. YA.

"Estimating the Life of Heat-Resistant Alloys as Applied to the Conditions of Nonstationary Loading"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collection of Scientific Works of the Kiev Institute of Civil Aviation Engineers), 1971, vyp. 1, pp 30-34 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11V518)

Translation: An analysis is performed of the most widespread method of estimating engine life based on the principle of linear summation of damage using the standard primary characteristics of the materials. In order to determine the life of parts made of heat-resistant alloys it is proposed that the characteristic features of the actual loading of the engine elements be considered, suitable calculation characteristics be obtained and natural loading programs be reduced to forced equivalent programs for control laboratory tests. The operating life by the program is determined from the condition of independence of accumulation of damage from the static and fatigue components. The degree of forcing of the laboratory test program is determined by means of the stress forcing conditions which it is recommended be obtained from the parameters of the hysteresis loop and the energy dissipation.

1/1

USSR

UDC: 517.9:533.7

GREBENSHCHIKOV, Yu. B., ~~SHIPILIN, A. V.~~, Moscow

"A Maximum-Thrust Nozzle With a Given Area of the Lateral Surface"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, Vol 12, No 1, Jan/Feb 72, pp 262-265

Abstract: The following problem is considered. Let  $ab$  be the unknown contour of a nozzle, let  $ac$  be the given characteristic of the oncoming flow, and let  $bc$  be the characteristic of the first family (Fig.). The area  $S$  of the lateral surface and the external pressure  $P_0$  are given. The problem is formulated as follows: For given values of  $P_0$  and the initial characteristic  $ac$ , find the function  $n(x)$  which guarantees the extremum of the functional

$$J = \int_{x_1}^{x_2} (P[x, \eta(x)] - P_0) \eta \eta' dx,$$

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USSR

GREBENSHCHIKOV, Yu. B., Shipilin, A. V., Zh. Vychisl. Mat. i Matem. Fiz., No 1, 1972, pp. 262-265

assuming the isometric condition on ab

$$S = \int_a^b \eta(1 + \eta')^{1/2} dx,$$

the differential relation on ab

$$\eta'u - v = 0,$$

and satisfaction of the equations

$$\frac{\partial u}{\partial y} - \frac{\partial v}{\partial x} = 0, \quad \frac{\partial(y\rho u)}{\partial x} + \frac{\partial(y\rho v)}{\partial y} = 0, \quad \frac{\partial P}{\partial u} = -\rho u, \quad \frac{\partial P}{\partial v} = -\rho v, \quad a^2 = \frac{dP}{d\rho}, \quad \sin^2 \alpha = \frac{a^2}{u^2 + v^2}$$

in region abc. Here  $x, y$  are cylindrical coordinates;  $u, v$  are projections of velocity on the  $x$ - and  $y$ -axes;  $\rho$  is density;  $P$  is pressure;  $a$  is the speed of sound;  $\alpha$  is the Mach angle; and  $\kappa$  is the adiabatic exponent. An iteration process is proposed for solving the boundary value problem, and the results

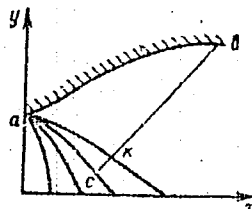
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USSR

GREBENSHCHIKOV, Yu. B., SHIPILIN, A. V., Zh. Vychisl. Mat.  
i Matem. Fiz., No 1, 1972, pp 262-265

are compared with those found by using other methods. Three  
figures, two tables, bibliography of three titles.



3/3

USSR

UDC: 577.4

SHIPILINA, L. B.

"Program of Synthesizing Boolean Functions in Bracket Form on One Type of Homogeneous Medium"

Inform. materialy. Nauch. sovet po kompleks. probl. "Kibernetika" AN SSSR  
(Informational Materials. Scientific Council on the Complex Problem of Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54), pp 116-118  
(from RZh-Kibernetika, No 5, May 72, Abstract No 5V350)

[No abstract]

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- 12 -

AN0012623

UR9016

TITLE-- A LIFE THAT IS LONGER THAN THAT OF A DIAMOND

NEWSPAPER-- SOVETSKAYA BELORUSSIYA, JANUARY 9, 1970, P 1, COLS 4-6

ABSTRACT-- A. M. MAZURENKO AND V. B. SHIPILO, ASSOCIATES OF THE INSTITUTE OF SOLID STATE PHYSICS AND SEMICONDUCTORS OF THE WHITE RUSSIAN ACADEMY OF SCIENCES, HAVE SYNTHESIZED BORON NITRIDE IN THE FORM OF PLATES. THE PROGRAM WAS GUIDED BY N. N. SIROTA, MEMBER OF THE WHITE RUSSIAN ACADEMY.

13571517

USSR

UDC 621.039.512.45

BASS, L. P., BRODER, D. L., ZHILKIN, A. S., KUTUZOV, A. A., SMETANIN, A. A., SUVOROV, A. P., SHESTOPALOV, Ye. V., SHIPILOV, A. Ye.

"Reactor Neutron Spectra in a Cylindrical Neutron Duct Surrounded by Water"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics -- Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 123-129 (from RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.61)

Translation: The energy and spatial distributions of neutrons with energies above 200 kev in an iron cylindrical neutron duct at distances up to 66 cm from its origin are discussed. The experimental data are compared with computational results made by two-dimensional programs using the  $P_1$ -approximation of the spherical harmonics method and the  $2D_{10,5}$ -approximation of the characteristic method. The presence of experimental data on the neutron energy spectra makes possible a corrective check on the methods for calculating the parameters of shields of limited transverse dimensions. 7 ill., 8 ref.

1/1

- 46 -

USSR

UDC 632.954

VOYEVODIN, A. V., SHIPINOV, N. A., All-Union Institute of Plant Protection

"Results of Studies and the Outlook for the Utilization of Herbicides"

Moscow, Zashchita Rasteniy, No 4, 1970, pp 47-49

Abstract: A chronological review is presented of the work carried out in the field of herbicides prior to the revolution, in the post-revolutionary era, and finally in the post-WWII period. A short section on economic aspects of herbicides in the USSR and abroad is followed by an extensive list of various herbicides as they are used against weeds of specific types of plants and vegetables.

1/1

USSR

UDC 632.954

VOYEVODIN, A. V., SHIPINOV, N. A., All-Union Institute of Plant Protection

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1/1

USSR

UDC 621.314.58 (088.8)

AKODIS, M.M., DROBININA, T.YA., UKHOV, V.S., SHIPITSIN, V.V. [Ural'sk politekhn.  
in-t--Ural Polytechnical Institute]

"Frequency Converter Using Controlled Rectifiers"

USSR Author's Certificate No 267763, filed 16 Jan 68, published 9 July 70 (from  
RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B565P)

Translation: In order to increase the effectiveness and reliability of thyristor  
frequency converters which contain saturable reactors, it is proposed in shunting  
thyristorized networks to connect a semiconductor diode and a resistor in parallel  
and to include a capacitor in series with them. 1 ill. I.R.

1/1

USSR

UDC 621.314.57(088.8)

MINEYEV, V. A., SHIPITSYN, V. V. [Ural'skiy politekhn. in-t im. S. M. Kirova --  
Ural

"Series Inverter"

USSR Author's Certificate No 248825, Filed 6 Feb 68, Published 19 Jan 70 (from  
RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10B341P)

Translation: A series inverter is proposed which consists of cells successively placed into operation, each of which contains thyristors and commutating capacitors. In order to increase the reliability of switching on of the units, it is proposed to connect the commutating capacitors among themselves in parallel via the thyristors. 3 ill. I. R.

1/1



USSR

UDC: 539.37:539.3-215

SHIPITSINA, Ye. M.

"Study of Deformations of a Hollow Sphere Under Pulse Loading Using the Three Dimensional Theory of Elasticity and the Theory of Shells"

Kiev, Prikladnaya Mekhanika, Vol 8, No 11, Nov 72, pp 28-32.

Abstract: The problem of the theory of elasticity is solved for a thick-wall hollow sphere under even dynamic loading by the method of integral Laplace transforms. The displacements and deformations are found for the case of loading with a brief pulse. The results are compared with the envelope solution. The range of geometric parameters and loading times within which calculations using envelope theory for brief, intensive loading can be considered reliable is determined.

USSR

UDC 539.18

MOROZOV, V. N., TATARINOVA, N. A., SHIPITSYN, S. A.

"Application of the Atomic-Absorption Method in Determining the Fields of Atoms and Ions in Spectral Light Sources"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol XV, No 6, 1971, pp 984-988

Abstract: A photographic and photoelectric method of recording atomic and ionic fields in spectral light sources based on atomic-absorption measurements was developed. The optical system of the device permits a detailed picture of the distribution of the optical densities in the source to be obtained with high spatial resolution. The electric recording circuit provides for separation of the absorption signal against a background of strong natural radiation of the source.

By the photoelectric procedure it is possible to measure the atomic and ionic concentration fields the resonance lines of which are within the operating range of the spectrograph and within the range of spectral sensitivity of the photomultiplier. The radiation intensity of a tube with a hollow cathode and the sensitivity of the recording circuit are very high and permit operation with a sounding beam with a cross section of  $0.1 \times 0.1 \text{ mm}^2$ . Results of using the techniques are presented for the atomic fields of calcium in an

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USSR

MOROZOV, V. N., et al., Zhurnal Prikladnoy Spektroskopii, Vol XV, No 6, 1971, pp 984-988

acetylene-air flame. A diagram of the isolines of the optical density of the acetylene-air flame for the 422.6 nm atomic line of calcium is given. Graphs are also presented for the optical density of the central cross section of the electrode spacing of a direct-current electric arc for the 422.6 nm atomic line of calcium and the 328.0 nm atomic line of silver. The graphs show that calcium and silver atoms are observed at a distance of up to 10 mm from the discharge axis. In the central section of the electric arc plasma the calcium atom concentration was less than in the peripheral regions. This arose from significant ionization of the calcium atoms in the central part of the plasma.

The solution of the Abelian integral equation is required to convert from the measured optical density fields to the radial distribution of the atoms. The method of measuring atomic and ionic fields in spectral light sources can be used for experimental studies of atom transfer, the laws of formation of atomic vapor, measuring the degree of ionization of atoms, and solving of the problems.

2/2

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USSR

UDC 543.42

MALYKH, V. D., MEN'SHIKOV, V. I., MOROZOV, V. H., SHIPITSYN, S. A.

"The Possibility of Using an Alternating-Current Arc in Atom-Absorption Analysis"

Minsk, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 12-16

Abstract: A method for atom-absorption analysis of elements with the application of an alternating current arc is proposed; previous studies had proposed the use of a direct-current electric current as an atomizer in conducting atom-absorption analyses, but the initial studies showed that the sensitivity of atom-absorption measurements considerably exceeds the sensitivity of emission measurements. Absorption is measured with a stroboscope in the current pauses to avoid the disturbing effect of arc radiation, and this makes it possible to design a circuit for recording the absorption signal. The distribution of vapors of the material was established on the basis of the change in the optical density of the interelectrode gap, and the average rest period of the atoms was measured. Sensitivity data obtained for atom-absorption measurements of gold and silver in coal deposits show that the sensitivity was  $5 \cdot 10^{-5}\%$  for gold and  $3 \cdot 10^{-7}$  for silver. The studies established that the variable-current

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USSR

MALYKH, V. D., et al, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 12-16

arc is a promising atomizer in atom-absorption analysis. It makes it possible to obtain high concentrations of atomic vapors in a brief time, and the absorption zone exceeds the excitation zone of the arc by more than a factor of 2-3. These factors ensure a high sensitivity of atom-absorption analysis for many elements. Studies of the optical density as a function of current phase and measurements of the delay time of the atoms in the interelectrode gap suggest that atom-absorption analysis in the arc current pause will have the high sensitivity only for elements with the low dissociation energies of oxygen molecules.

2/2

- 106 -

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF ADRENAL GLANDS FUNCTIONAL STATE ON OXIDATIVE METABOLISM  
OF VITAMIN A AND ITS CONTENT IN ADRENAL GLANDS, LIVER AND BLOOD PLASMA  
AUTHOR--(04)-GRIGORYEVA, L.V., NATANSON, A.O., SMIRNOV, M.I., SHIPITSYNA,  
~~L.P.~~  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 300-306  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ADRENAL GLAND, OXIDATION, METABOLISM, VITAMIN, LIVER, BLOOD  
PLASMA  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1998/0144 STEP NO--UR/0301/70/016/003/0300/0306  
CIRC ACCESSION NO--AP0120844  
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120844

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENT OF VARIOUS VITAMIN A FORMS (ALCOHOL, PALMITATE; ALDEHYDE) IN ADRENAL GLANDS OF RATS AT THEIR ACTIVATION BY MEANS OF UNILATERAL ADRENALECTOMIA OR ACTH ADMINISTRATION AFTER INHIBITION OF THEIR FUNCTION BY PROLONGED HYDROCORTISOL INJECTION AND AFTER CANCELLATION OF HYDROCORTISOL WAS STUDIED. SIMULTANEOUSLY ALL THREE FORMS OF VITAMIN A CONTENT IN LIVER AND BLOOD PLASMA WAS DETERMINED. ACTIVATION OF ADRENAL GLANDS FUNCTION LEADS TO DECREASE IN THEIR VITAMIN A CONTENT. INHIBITION OF THEIR FUNCTION DID NOT CHANGE SIGNIFICANTLY VITAMIN A CONCENTRATION. THE DECREASE IN VITAMIN A CONTENT IN LIVER OF RATS INJECTED WITH HYDROCORTISOL WAS NORMALIZED AFTER THE CANCELLATION OF THE DRUG. THE CONSTANCY IN VITAMIN A ALDEHYDE CONTENT IN ADRENAL GLANDS, LIVER AND BLOOD SHOWS THAT ACTIVATION AS WELL AS INHIBITION OF ADRENAL CORTEX FUNCTION DOES NOT LEAD TO THE INCREASE IN OXIDATIVE VITAMIN A TRANSFORMATION IN ADRENAL GLANDS AND LIVER OF EXPERIMENTAL ANIMALS. FACILITY: ALL UNION RESEARCH VITAMINOLOGY INSTITUTE USSR MINISTRY OF HEALTH, MOSCOW.

UNCLASSIFIED

USSR

UDC 911.3:616.9:576.895.771(47+57)

SHIPITSINA, N. K., ANUFRIYEVA, V. N., BANDIN, A. I., VINOGRADSKAYA, O. N.,  
GORNOSTAYEVA, R. M., KUPRIYANOVA, Y. S., MARKOVICH, N. Ya., RASNITSYN, S. P.,  
and TIMOFEYEVA, L. V.

"Study of the Biology of Blood-Sucking Diptera as Basis for Combating  
Vectors of Infection and Blood-Sucking Insects in the Soviet Union"

V sh. Materialy Nauchn. konferentsii posvyashch. 50-letiyu In-ta Med.  
parazitol. i tropich. Med. 1970 (Proceedings of the Scientific Conference  
Devoted to the 50th Anniversary of the Institute of Medical Parasitology  
and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 48-49  
(from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.48)

[No abstract]

1/1



Graphite

USSR

UDC 621.3.035.2

GOLOVINA, YE. S., ~~SHIPKOV, N. M.~~, KOTOVA, L. I., PERKOVA, G. A.,  
DEMIN, A. V., and RAKCHEYEVA, V. I.

"Reactivity of Graphite With Titanium and Silicon Additives"

Tsvetnyye Metally, No 3, Mar 71, pp 59-62

Abstract: The reactivity of graphite with added titanium (0-10%) and silicon (3 wt %) was studied in an active gas medium at high temperatures (2500 and 3000°K). It was established that the introduction of silicon alone, facilitating the technological process, only slightly increases the resistance of graphite in the active medium. The combined introduction of titanium and silicon significantly reduced the reactivity of the graphite.

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Graphite

USSR

UDC 621.3.035.2

GOLOVINA, YE. S., SHIPKOV, N. M., KOTOVA, L. I., PERKOVA, G. A.,  
DEMIN, A. V., and RAKCHEYEVA, V. I.

"Reactivity of Graphite With Titanium and Silicon Additives"

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Abstract: The reactivity of graphite with added titanium (0-10%) and silicon (3 wt %) was studied in an active gas medium at high temperatures (2500 and 3000°K). It was established that the introduction of silicon alone, facilitating the technological process, only slightly increases the resistance of graphite in the active medium. The combined introduction of titanium and silicon significantly reduced the reactivity of the graphite.

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UDC 669.71:472:621.035

USSR

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA, N. A.,  
and SHIPKOV, N. N.

"Manufacture of Roasted Anodes for Aluminum Electrolyzers by the Method of  
Combined Pressing and Roasting"

V sb. Konstrukts. materialy na osnove grafita (Graphite-Base Construction  
Materials -- Collection of Works), No 6, Moscow, "Metallurgiya" (Metallurgy),  
1971, pp 10-13 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G131 by  
G. Svodtseva)

Translation of Abstract: The results of tests with experimental specimens  
showed that the method of combined pressing and roasting makes it possible  
to obtain roasted anodes with elevated physicommechanical and operational  
characteristics from various raw materials.

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USSR

UDC 621.357.1:669.713.72

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA,  
N. A., SHIPKOV, N. N.

"Manufacture of Annealed Anodes for Aluminum Electrolyzers by Combined  
Pressing and Annealing"

Konstrukts. Materialy na Osnove Grapfita [Graphite-Based Structural Materials  
-- Collection of Works], Moscow, Metallurgiya Press, No 6, 1971, pp 10-13  
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No  
2 L309 from the Resume).

Translation: The possibility is demonstrated of using the method of combined  
pressing and sintering for the preparation of prismatic specimens of sintered  
anodes based on various raw materials: type KNPE petroleum coke mixed with  
pitch, shale, and also individually of non-roasted pitch coke. The properties  
of the anodes produced are compared with those of anodes type DEZ, anodes  
from companies in the GDR, FRG and Switzerland, tested under similar condi-  
tions. The results indicate that manufacture of anodes by combined pressing  
and sintering produces anodes with lower oxidizability, subject to consider-  
ably less damage upon interaction with  $\text{CO}_2$ , with compact structure.

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- 25 -

1/2 057 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--NEW CLASS OF SYNTHETIC GRAPHITES -U-

AUTHOR--(104)-DEMIN, A.V., RAKCHEYEVA, V.I., PERKOVA, G.A., SHIPKOV, N.N.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(4), 61-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS,  
PHYSICS

TOPIC TAGS--CHEMICAL SYNTHESIS, GRAPHITE, SEMICONDUCTOR MATERIAL,  
ANISOTROPY, CHEMICAL COMPOSITION, TITANIUM, SILICON, BORON, ZIRCONIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1251

STEP NO--UR/0136/70/043/004/0061/0062

CIRC ACCESSION NO--AP0134925

UNCLASSIFIED

2/2 057

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134925

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW TYPE OF SYNTHETIC GRAPHITE  
WAS DEVELOPED. THE MATERIALS (GRAPHITE PLUS TI, ZR, SI, B, ETC., UP TO  
10 WT. PERCENT) ARE PRESSURE TREATED ABOVE 2000DEGREES. IN ALL PHYS.  
CHARACTERISTICS THE NEW TYPE OF SYNTHETIC GRAPHITES DIFFERS FROM KNOWN  
GRAPHITE MATERIALS, E.G., THE STRENGTH OF THESE MATERIALS IS HIGHER BY A  
FACTOR OF 2-3. THE POSSIBILITY OF CHANGING THE THERMAL COND. IN THE  
WIDE RANGE (FROM 35-40 FOR USUAL GRAPHITES TO 300 KCAL PER M HR DEGREE  
FOR CU) IS A UNIQUE PROPERTY OF THESE MATERIALS. THE NEW GRAPHITES SHOW  
ANISOTROPY ALSO. THESE NEW GRAPHITES HAVE APPLICATIONS AS MATERIALS FOR  
SEMICONDUCTOR AND HIGH TEMP. TECHNIQUES.

UNCLASSIFIED

USSR

UEC 621.3.035.2

DEMIN, A. V., RAICHEYEVA, V. I., PERKOVA, G. A., and SHIPKOV, N. N.

"New Class of Synthetic Graphites"

Moscow, Tsvetnyye Metally, No 4, Apr 70, pp 61-62

Abstract: The physical-mechanical properties of a new class of artificial graphites, including C-Zr-Si, C-Ti-Si, C-Ti-B, and C-B, are presented and discussed. Analysis of the data shows that the new class of graphites differs appreciably from the known graphites with respect to all physical characteristics. The strength of the new materials is 2-3 times higher, and the porosity is tens of times lower. One unique property of the new graphites is the possibility of varying the thermal conductivity within broad limits: from the thermal conductivity of ordinary graphite (35-40 kcal/m·hr·deg) to the thermal conductivity of copper (300 kcal/m·hr·deg). The distinguishing feature of the new class is anisotropy of their properties which varies from version to version, reaching a highest value of 2.5-3. The physical-mechanical characteristics of the synthetic graphites permit them to be used in semiconductor and high-temperature engineering, in melting and casting production, and in chemical machine-building.

1/1

USSR

UDC 611.85:523

SARKISOV, I. Yu. and SHIPOV, A. A., Moscow Physicotechnical Institute

"Adequate Vestibular Stimulation on the Earth and in Space"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya, Biologicheskaya, No 3, 1973,  
pp 374-379

Abstract: The article describes a mathematical analysis of adequate vestibular forces felt by man while moving his head, trunk, and entire body using reference systems both inactive and moving relative to the earth. Formulas are given for computing effective accelerations acting on the receptors of the otoliths and semicircular canals. A three-element model of a human skeleton is employed to study the application of the formulas to a case involving human activity in an orbital station steadily revolving to create artificial gravity.

1/1



Physiology

USSR

UDC 612.386

SEIPOV, A. A., Moscow

"Electronystagmographic Characteristics of Compensation Processes in the Vestibular System"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenova, Vol 56, No 6, Jun 70, pp 895-900

Abstract: The effects of unilateral labyrinthectomy and bilateral labyrinthectomy on the frequency of nystagmus were studied in guinea pigs. Destruction of the second labyrinth was done 10 days after the first, when the nystagmus produced by the first operation had disappeared. The compensatory process in the central nervous system (as indicated by a decrease in the frequency of nystagmus) developed exponentially in both cases. The nystagmus frequency was lower after bilateral than after unilateral labyrinthectomy, and the time constant of extinction of nystagmus was significantly smaller. The capacity for eye fixation apparently improved after the second operation.

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UDC 612.886.014.47:531.113

USSR

SHIPOV, A. A.

"Selectivity of Vestibular Adaptation With Respect to the Direction of a Repeated Angular Acceleration"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 8, Aug 70, pp 14-16

Abstract: Guinea pigs were rotated according to the following program:  $5^{\circ}/\text{sec}^2$  positive acceleration for 2 sec, 30 sec plateau at  $10^{\circ}/\text{sec}$ ;  $5^{\circ}/\text{sec}^2$  positive acceleration for 2 sec, 30 sec plateau at  $20^{\circ}/\text{sec}$ ; etc., up to a velocity of  $60^{\circ}/\text{sec}$  for 30 sec followed by a stop for 0.15 sec. The animals were rotated in this manner a single time to the right and then once to the left, and were then rotated 10 times to the right and once to the left. Nystagmus determinations indicated that, under these conditions, irritation of the vestibular apparatus above the threshold developed only on deceleration. Studies based on the nystagmus reaction showed that adaptation to either single or repeated rotation to the right was not transmitted to rotation to the left. Results obtained by G. H. Crampton which indicated transmission of adaptation after reversal of the direction of rotation may be ascribed to the fact that stimulation of the vestibular apparatus above the threshold for appearance of nystagmus developed during both acceleration and deceleration under the conditions applied in that study.

1/1

USSR

UDC 591.1

SMITOV, A. A., GALICHY, V. A., and EPSHTEYN, Ye. L., Institute of Biomedical Problems, Ministry of Health USSR

"Changes in the Speed of the Process of Vestibular Compensation as a Function of the Position of the Head"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, 1970, pp 673-678

Abstract: The effects of head position on the rate of compensation after impairment of vestibular function were studied in rabbits by means of unilateral labyrinthectomy. The dynamics of the compensatory process was assessed from the resulting nystagmus. Nystagmus is one of the first symptoms to appear in unilaterally labyrinthectomized rabbits; it is clear-cut, lasts several days, and can be described quantitatively. Following destruction of a labyrinth, nystagmus directed toward the intact side appeared. The average number of nystagmic movements in experimental animals with the head forcibly maintained in a horizontal position was  $54.4 \pm 6.5$ , as compared to  $59.1 \pm 3.6$  in controls. After 24 hours, the movements decreased to  $36.6 \pm 4.5$  and  $17.5 \pm 3.4$ , respectively, i.e., they were 34.5 and 72% of the initial level. The compensatory process was thus significantly slower in the animals whose heads were kept on a horizontal plane, a fact which is 1/2

USSR

SEITOV, A. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, 1970, pp 673-678

ascribed chiefly to the characteristic redistribution of proprioceptive impulses from the neck muscles to the vestibular nuclei.

2/2

1/2 023 UNCLASSIFIED PROCESSING DATE--20NDV70  
TITLE--QUANTITATIVE DESCRIPTION OF THE DYNAMICS OF THE COMPENSATORY  
PROCESS IN THE CENTRAL NERVOUS SYSTEM -U-  
AUTHOR--(02)--GALICHIY, V.A., SHIPOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 1,  
PP 114-119  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MYSTAGMUS, CENTRAL NERVOUS SYSTEM, RABBIT, VESTIBULAR FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PRUXY REEL/FRAE--3005/0382

STEP NO--UR/0216/70/000/001/0114/0119

CIRC ACCESSION NO--AP0132611

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132611

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DYNAMICS OF THE VARIATION OF SPONTANEOUS NYSTAGMUS WHICH SERVED AS A CRITERION FOR THE EVALUATION OF A COMPENSATORY PROCESS IN THE CENTRAL NERVOUS SYSTEM WAS STUDIED IN UNILATERALLY LABYRINTHED RABBITS. IT WAS ESTABLISHED THAT THE DEVELOPMENT OF A TEMPORAL COMPENSATORY PROCESS IS EXPRESSED BY AN EXPONENTIAL FUNCTION. THE BASIC RECOVERY MECHANISMS OF A DESTROYED VESTIBULAR FUNCTION ARE DISCUSSED. FACILITY: INSTITUTE OF MEDICO-BIOLOGICAL PROBLEMS, USSR MINISTRY OF HEALTH.

UNCLASSIFIED

1/2 039  
UNCLASSIFIED  
PROCESSING DATE--23OCT70  
TITLE--THEORETICAL AND EXPERIMENTAL PROBLEMS IN THE STUDY OF THE  
MECHANISMS OF THE VESTIBULAR NYSTAGMUS -U-  
AUTHOR--(04)-RAZUMEYEV, A.N., SRAGOVICH, V.G., SUSHKOV, B.G., SHIPOV, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P.  
22-30  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--SPACE MEDICINE, VESTIBULAR DISTURBANCE, EYE, VISUAL  
PERCEPTION, SENSORY PHYSIOLOGY, MATHEMATIC MODEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/1969  
STEP NO--UR/0453/70/004/000/0022/0030  
CIRC ACCESSION NO--AP0120612  
UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120612

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REVIEW OF PUBLISHED STUDIES CONCERNING THE MECHANISMS OF THE VESTIBULAR NYSTAGMUS. A MATHEMATICAL MODEL OF THE INTERACTION BETWEEN THE VESTIBULAR AND OCULOMOTOR APPARATUSES IS PROPOSED AS THE BASIS OF A POSSIBLE MECHANISM OF THE DEVELOPMENT OF A VESTIBULAR NYSTAGMUS. THE ANATOMICAL AND PHYSIOLOGICAL CORRELATIONS BETWEEN THE COMPONENTS OF THIS MODEL DURING THE PROCESSING OF AFFERENT INFORMATION ARE DISCUSSED. EXPERIMENTS DESIGNED TO BRING THIS MODEL CLOSER TO THE CEREBRAL STRUCTURES RESPONSIBLE FOR THE NYSTAGMUS ARE DESCRIBED.

UNCLASSIFIED



USSR

UDC 541.69:661.718.1

MASTRYUKOVA, T. A., SHIROV, A. E., GOPBENKO, E. B., KABACHNIK, M. I., KAGAN, YU. S., YERSHOVA, YE. A., SRABANOVA, M. P., and SAVCHENKO, K. N., Institute of Heteroorganic Compounds, Academy of Sciences USSR

"A New Type of Selective Organophosphorus Insecticides and Acaricides. 2. Methylthiophosphonic Acid Derivatives"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 9, Sep 71, pp 2003-2005

Abstract: In an earlier article the authors examined a new type of selective insecticides and acaricides, viz. derivatives of mono- and dithiophosphoric acids containing amino acid residues, their esters and methylanides. The present article deals with an analogous series of methyl dithiophosphonates, obtained by the reaction of the corresponding chloroacetyl derivatives of amino acids or their esters with ammonium O-ethyl methylthiophosphonate. It was found that compounds of this series are more toxic for arthropods and warm-blooded animals than the corresponding dithiophosphates. Substances containing a free carboxyl group are the least toxic. A study of the insecticidal and acaricidal activity of the resultant compounds shows that they are more characterized by acaricidal activity and that they are more

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USSR

MASTRYUKOVA, T. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya,  
No 9, Sep 71, pp 2003-2005

active insecticides and acaricides than the corresponding phosphates, but the selectivity of their effect on arthropods is weaker than in the case of dithiophosphates. A comparison of the effect of these two groups on arthropods and warm-blooded animals shows greater selectivity in the case of methyl dithiophosphonates.

2/2

USSR

UDC 547.461

MASTRYUKOVA, T. A., ~~SHIPOV, A. E.~~, SUYERBAYEV, Kh. A., and KABACHNIK, M. I.,  
Institute of Metal Organic Compounds, Acad. Sc. USSR

"Synthesis of Some New Potential Myorelaxants"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 8, No 4, Apr 72, pp 681-682

Abstract: Reaction of succinyl dichloride with glycine or sarcosine ethyl ester yields diethyl esters of succinyldiglycine or succinyldisarcosine, which can be transesterified to 2-dimethylaminoethyl esters using 2-dimethylaminoethanol, and finally after a treatment with dimethyl sulfate or methyl bromide, they yield cholinec esters. Reaction of N,N'-disuccinylethylenediamine with ethylene bromohydrin in presence of dicyclohexylcarbodiimide yields its di-(2-bromoethyl) ester which, after treatment with trimethylamine, gives the dicholine ester of N,N'-disuccinylethylenediamine. All compounds are weak myorelaxants.

1/1

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USSR

UDC: 632.95

KABACHNIK, M. I., MASTRYUKOVA, T. A., SHIPOV, A. E., ANDRIANOVA, L. V.,  
VARSHAVSKIY, S. L., and KOPMAN, L. P.

"A Method for Preparing N-Acyl-S-(o-Alkylmethylthiophosphonyl) Cysteine Ester  
Derivatives"

USSR Author's Certificate No 253063, filed 18 July 68, published 3 Apr 70 (from  
RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N650 P by G. V. Kusnetsova)

Translation: The indicated substances with the general formula  $\text{ROPMe(S)SCH}_2\text{-CH(NH-COR')COOR''}$  (I) (R, R' and R'' = alkyls) are obtained from the reaction of  $\text{ROPMe(S)Cl}$  with  $\text{HSCH}_2\text{CH(NHCOR')COOR''}$  in an organic solvent medium in the presence of an HCl acceptor. A solution of 1.7 g of iso- $\text{PrOMe(S)Cl}$  in 10 ml of absolute  $\text{C}_6\text{H}_6$  is added to a solution of 2 g of  $\text{HSCH}_2\text{CH(NHAc)COOEt}$  and 1.1 g of  $\text{Et}_3\text{N}$  in 50 ml of absolute  $\text{C}_6\text{H}_6$  in an inert gas atmosphere while being mixed. The mixture is stirred for 1 hour at  $20-5^\circ$  and then at  $50-5^\circ$ . The precipitated  $\text{Et}_3\text{N}$  hydrochloride is filtered off and the filtrate washed with cold 2%  $\text{Na}_2\text{CO}_3$  solution and water. The solution is evaporated and by chromatography on  $\text{SiO}_2$  (hexane-acetone 3:2) 1.38 g (42.2%) of I (R=iso-Pr, R'=Me,

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USSR

KABACHNIK, M. I., et al, USSR Author's Certificate No 253063, filed 18 July 68, published 3 Apr 70 (from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N650 P by G. V. Kusnetsova)

$R''=Et$ ),  $C_{11}H_{22}NO_4PS_2$ , is obtained. The next I ( $R'=Me$ ; R,  $R''$ , yield in %,  $d_4^{20}$ , and  $n_D^{20}$  are given) is prepared in a similar fashion: Me, Me, 42.6, 1.2446, 1.5296; Me, Et, 48.7, 1.2068, 1.5210; Me, iso-Pr, 66.8, 1.1694, 1.5108; Et, Me, 40.5, 1.2041, 1.5152; Et, Et, 51.5, 1.1780, 1.5138; Et, iso-Pr, 23.5, 1.1608, 1.5082; Pr, Me, 54.4, 1.1948, 1.5151; Pr, Et, 38.3, 1.1477, 1.5050; Pr, Pr, 45.2, 1.1497, 1.5140; Pr, iso-Pr, 1.1490, 1.5069; iso-Pr, Me, 45, 1.1560, 1.5029; and iso-Pr, iso-Pr, 22.5, 1.1506, 1.4990. I can be used as physiologically active substances and as intermediate products in organic synthesis.

USSR

UDC 541.632+538.113:661.718.1

MASTRYUKOVA, T. A., ~~SHIPOV, A. E.~~, VAYSBERG, M. S., PETROVSKIY, P. V., and  
KABACHNIK, M. I., Institute of Heteroorganic Compounds, Academy of Sciences  
USSR

"PMR Study of Diastereoisomerism of Substituted O-Ethyl Methylthiophos-  
phonates"

Moscow, Izvestiya Akademii Nauk SSSR, Sériya Khimicheskaya, No 8, Aug 71, p  
1841

Abstract: In compounds of the general formula  $\text{CH}_3(\text{C}_2\text{H}_5\text{O}(\text{P}(\text{S})\text{SCH}_2\text{C}(\text{O})\text{NHCH}(\text{R})-\text{COOH} [\text{R} = \text{H} (\text{I}), \text{CH}_3 (\text{II}) \text{ and } i\text{-C}_3\text{H}_7 (\text{III})]$ , (II) and (III) contain two asymmetric centers separated by five single bonds. Nevertheless, the PMR spectra of the resultant mixture of diastereomers clearly shows two doublet signals for the methyl protons corresponding to the two diastereomers. The difference in chemical shifts varies according to compound and solvent from 0.06 to 0.1 p.p.m., with the maximum for compound (III) in benzene. This difference is great for substances in which the asymmetric centers are far removed from each other. Thus, it is shown that diastereomerism can be found in the PMR spectra for molecules with separated asymmetric centers.

1/1

Circuit Theory

USSR

SHIPOV, G. I.

UDC: 621.385:530.145.6:53

"On the Interaction Between Strong Electromagnetic Radiation and Matter"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physica and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 108-114 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D550)

Translation: Dispersion equations for tensors of nonlinear susceptibility are considered within the framework of classical electrodynamics. A complete set of dispersion equations is derived for the components of the quadratic tensor of susceptibility; an analogous method may be used to find relationships for the tensor of cubic susceptibility. Bibliography of ten titles.

1/2 023  
TITLE--STUDY OF THE FLUTTER OF THE BLADES OF AXIAL COMPRESSORS USING THE  
DISCRETE PHASE METHOD -U-  
AUTHOR--(02)-ZASLAVSKIY, A.G., SHIPOV, R.A.  
COUNTRY OF INFO--USSR  
SOURCE--LENINGRAD, ENERGOMASHINOSTROYENIYE, NO. 2, 1970, PP 21-23  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--METAL COMPRESSOR BLADE, BIBLIOGRAPHY, OSCILLATION, AXIAL FLOW  
COMPRESSOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FKAME--1997/1639  
CIRC ACCESSION NO--AP0120393  
STEP NO--UR/0114/70/000/002/0021/0023  
UNCLASSIFIED



2/2 023

CIRC ACCESSION NO--AP0120393  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. USING A CONTACT FREE DISCRETE  
PHASE METHOD OF MEASURING THE VIBRATIONS (THE ELURA DEVICE) IT IS SHOWN  
THAT FOR A GIVEN BLADE RING THERE EXIST SEVERAL DIFFERENT INTRINSIC  
FORMS OF OSCILLATIONS (DIFFERENT DISTRIBUTIONS OF THE AMPLITUDES OF THE  
BLADE OSCILLATIONS IN THE CASE OF FLUTTER). IT IS ESTABLISHED THAT THE  
SCATTERING OF THE NATURAL FREQUENCY OF THE OSCILLATIONS OF THE BLADES BY  
10 TO 60 TIMES. THE CONNECTION BETWEEN THE DISTRIBUTION OF THE  
FREQUENCIES AND AMPLITUDES OF THE OSCILLATIONS, AS A RULE, IS LACKING.  
IT WAS NOTICED THAT EVEN IN THE CASE OF A SUBSTANTIAL DIFFERENCE OF THE  
FREQUENCIES OF NEIGHBORING BLADES THEIR AMPLITUDES AS A RESULT OF THE  
CONNECTEDNESS OF THE OSCILLATIONS DIFFER RELATIVELY LITTLE.

UNCLASSIFIED

USSR

UDC: 624.07:534.1

SHIPOV, R. A.

"Investigation of the Effect Which the Dynamic Nonhomogeneity of an Annular Blading Array has on the Resonance Oscillations of its Foils"

V sb. Prochnost' i dinamika aviats. dvigateley. Vyp. 6 (Strength and Dynamics of Aircraft Engines--collection of works, No 6), Moscow, "Mashinostroyeniye", 1971, pp 98-113 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V232)

Translation: The paper examines resonance excitation of a dynamically nonhomogeneous annular array of airfoils. It is assumed that the array is made up of regularly alternating blades of two types. It is assumed further that only adjacent foils directly interact (through the gas and the disc). No limitations are imposed on the magnitude of the nonhomogeneity or on the number of blades in the array. Computational examples are given. It is shown that the stress level in the case of oscillations of a nonhomogeneous array is greater than for the corresponding homogeneous array. The effect of some aerodynamic factors on the resonance stresses is analyzed. Author's abstract.

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- 24 -

So: JPRS 55015  
25 Jan 72

UDC: 362.11(47-21:47-22)

UDC: 362.11(47-21:47-  
DISTINCTIONS IN LEVEL AND STRUCTURE OF HOSPITAL CARE FOR SICK PATIENTS IN  
DIFFERENT TYPES OF CITIES

[Article by Ye. A. Leginova, M. V. Potekhin, V. M. Shipova, N. C.  
Sestovik, L. F. Bugun, A. K. Plyusov, S. P. Trushin, I. K.  
Sivayeva, A. A. Lyubskoy, All-Union Scientific Research Institute of  
Hygiene and Public Health Organization imeni N. A. Semashko, Moscow, U.S.S.R.,  
Ukrainovskaya, and Kurskaya oblast health departments; Moscow, Sovetskoye  
Zdravoohraneniye, Russian, No 12, 1971, submitted 26 March 1971, pp 16-21]

Urban therapeutic institutions play an important role in rendering acquainted and particularly specialized care for the rural population. It is a known fact that the rural population is the most vulnerable to various diseases and accidents.

it is a known fact that the volume of medical care rendered to the population by urban institutions is increasing annually, however, to date this is not taken into consideration in planning urban public health care. In addition, there are still insufficient special investigations to date the rural residents demand for specialized hospital and extramural care. Different stages of organization of rural public health.

The absence of differentiated standards of the demands of the rural population with regard to special forms of medical care makes it imperative to pursue in-depth investigations of the level and distinctions of the demand for different forms of therapeutic and prophylactic care in concrete sections of different types of cities.

For this purpose, the All-Union Scientific Research Institute of Social Hygiene and Public Health, Odessa, and the Scientific Center of the Soviet Public Health Department of the Ministry of Health of the USSR, Volgograd, and the Bashkir Ministry of Health conducted a complex study of the level and structure of hospital, polyclinic, and complex station services offered to rural residents in the different cities.

In this article we submit the results of a study of the level and structure of hospital care rendered to the rural population in different types of enterprises in Rostovskaya, Ulyanovskaya, and Kurskaya oblasts; data pertaining to which bases are undergoing statistical processing.

USSR

UDC 621.791.753.053:620.192.41:62-413.669.35'6

SHIPULIN, A. P., Engineer, Verkhnyaya Salda Metalworking Plant

"Features of Weld Metal Crystallization in One-Pass Submerged Arc Welding of Chromium Bronze Plates"

Moscow, Svarochnoye Proizvodstvo, No 12, Dec 70, pp 24-25

Abstract: It has been found that cracks appear in the one-pass submerged arc welding of Br.Kh08 chromium bronze plates, usually at the beginning of the weld. This is especially true of welds made in one pass without grooving. To ascertain the cause of the cracking, the author studied weld metal crystallization in the welding of tubes 450 mm in diameter with a wall thickness of 30 mm. It was found that high hot-cracking resistance can be assured in the deposited metal by special techniques and conditions for the appearance and growth of the central crystallites. These include: 1) a reduction in the arc delay time at the start of welding for the purpose of heating the groove faces, with the optimum arc delay time 2-3 sec for 30-mm-thick metal and 4-5 sec for 40-mm-thick metal; 2) beginning the welding 40-50 mm away from the edge of the product; and 3) grooving.

1/1

1/2 011  
UNCLASSIFIED  
TITLE--PREPARATION OF COLLOIDAL SULFUR -U-  
AUTHOR-(04)-LAZORIN, S.N., SUKHOMLINOV, B.P., SHIPULIN, V.K., STETSENKO,  
YE.YA.  
COUNTRY OF INFO--USSR  
SOURCE--KOKS KHIM. 1970, (3), 30-3  
DATE PUBLISHED--70  
PROCESSING DATE--13NOV70  
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--SULFUR, FILTRATION, CHEMICAL PURIFICATION, ARSENIC, MILDEW,  
AGRICULTURE CHEMICAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/1418  
CIRC ACCESSION NO--AP0109480  
STEP NO--UR/0068/70/000/003/0030/0033  
UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--AP0109480  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. A RAPID ECONOMICAL PRODUCTION PROCESS IS DESCRIBED FOR PREPG. COLLOIDAL S BY USING NATIVE RAW MATERIALS. FILTER CAKE FROM AN ARSENIC SODA S REFINERY WAS DILD. WITH THE FILTRATE IN A REPULPING APP., WHERE THE S CONC. WAS REDUCED FROM 60 TO 20PERCENT. THE FILTRATE WAS THEN PIPED INTO A CIRCULATING COLLECTOR AND THE SLURRY LOADED INTO A CENTRIFUGE, WHERE THE S, RINSED WITH WATER, MAINTAINED A SOLIDS TO LIQ. RATION OF 1 IS TO 1.75-2.0. ABOUT 20PERCENT OF THE RINSING LIQ. WAS RETURNED TO THE COLLECTOR AND THAT REMAINING WAS USED TO DISSOLVE THE SODA. AFTER THE SALT CONC. WAS REDUCED, THE SOLN. WAS RETURNED TO THE SLURRY PREPG. REPULPER. THE EXCESS CIRCULATING FILTRATE WAS THEN COMBINED WITH AN ABSORBING SOLN., THROUGH A FROTH COLLECTOR AND VACUUM FILTER, FOR S PURIFICATION. THE RINSED S, DRIED TO A MOISTURE CONTENT OF 10-12PERCENT, WAS LOADED AS FINES INTO A HOPPER WITH AGITATOR THEN INTO A MIXER FOR PROCESSING WITH SULFITE CAUSTIC. THE COMPONENTS WERE MIXED AND NEUTRALIZED, WETTED, AND LOOSENEED FOR FINAL DELIVERY AT 9-7PERCENT MOISTURE AND 40-50DEGREES. SUCH COLLOIDAL S CAN BE STORED UNSEALED FOR ABOUT 3 YEARS, RETAINING ITS QUALITY IN SPITE OF ALMOST COMPLETE MOISTURE LOSS; IN CONCNS. OF 0.5 TO 1PERCENT IT WAS EFFECTIVE FOR TREATING APPLE TREES AND GRAPEVINES AGAINST POWDERY MILDEN.

UNCLASSIFIED

USSR

UDC 612.017.1-06:614.47

VASIL'YEVA, O. A., AKSENENKO, G. R., and SHIPULINA, N. I., Tomsk Institute of Vaccines and Sera, Tomsk Medical Institute

"Immunobiologic Reactivity of Man in Combined Vaccination"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 109-115

Abstract: Studies were made of vaccine reactions in 845 subjects immunized with 7 different combinations of viral and bacterial vaccines, and of non-specific immune indexes in 140 persons similarly immunized. All subjects were 22-24 years old. The vaccines tested were commercial preparations of tick-borne encephalitis virus, smallpox virus, tularemia, typhoid-paratyphoid-tetanus (TABT), and a typhoid vaccine with tetratoxoid (botulinus types A, B, and E, and tetanus). The subjects were followed for 30 days. The most frequent vaccine reactions were encountered in subjects vaccinated with TABT (weak reactions in 42% of subjects and moderate in 10%), and with the typhoid-tetratoxoid combination (weak reactions in 25% of the subjects and moderate reactions in 12% of the subjects). Administration of these vaccines in combination with other vaccines did not alter the vaccine reactions. Complement levels were depressed in all subjects by day 7, and continued to fall by day 14 (with the exception 1/3

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USSR

VASIL'YEVA, O. A., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 109-115

of TABT, whether given alone or in combination with other vaccines); by day 30 complement levels approached normal values. Most pronounced depression of complement levels was encountered in subjects immunized with the encephalitis vaccine and the typhoid-tetratoxoid combination, whether administered alone or in combination with other vaccines. Administration of the encephalitis vaccine and typhoid-tetratoxoid either alone or in combination with other preparations led to a 3-fold depression of serum lysozyme concentrations on days 7 and 14, with subsequent elevation of concentrations. Subjects immunized with the smallpox vaccine showed depressed lysozyme levels on day 14. TABT elicited a short-term elevation of serum lysozyme by day 7, and then a fall to normal levels after 2 to 4 weeks. Normal serum hemolysin levels were elevated in all subjects by day 7, depressed by day 14, and increased by day 30. The studies also showed that subcutaneous administrations of the vaccines decreased serum bactericidal activity, as determined on day 7, 5-6 fold; subsequently, bactericidal activity returned to normal levels and again fell sharply by day 30. The intracutaneous and superficial administration of the smallpox vaccine elicited a 3-fold decrease in serum bactericidal activity when measured on day 14, which remained at that level until the end of the month.

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USSR

VASIL'YEVA, O. A., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 109-115

The results indicate that there are dynamic changes in both innate and acquired immunity following immunization, and that subsequent immunizations should be postponed at least for a month or two. Furthermore, whether given in combination or singly, the vaccines were equally effective in evoking antibody formation.

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USSR

UDC 616.988.13+616.988.251-092.9-07:616.155.34-076.5

VASIL'YEVA, O. A., FRADKIN, V. A., and SHIFULINA, N. I., Tomsk Institute of Vaccines and Sera and State Control Institute of Biomedical Preparations  
imeni L. A. Tarasevich, Moscow

"Index of Neutrophil Injury as a Test of Sensitivity to Smallpox and Tick-borne Encephalitis Vaccines"

Moscow, Laboratornoye Delo, No 12, 1972, pp 730-732

Abstract: The index of neutrophil injury (INI) (the criterion of injury is the amoeboid activity of the cells) is a promising method of detecting specific sensitivity to smallpox and tickborne encephalitis vaccines. Amoeboidism is determined from the formula  $\frac{H-H_1}{100}$ , where 100 is the number of neutrophils

counted in each smear, H is the number of injured neutrophils in a specimen, and  $H_1$  is the same number in the control. The INI ranged from 0.07 to 0.30 and from 0.02 to 0.09 in rabbits inoculated with smallpox and tickborne encephalitis vaccines, respectively, compared to 0.03 to 0.30 and 0.02 to 0.04 in the control. In children vaccinated with smallpox vaccine at age 1-2 and revaccinated at 8 or 15, the average INI was 0.08 (maximum 0.12) in those vaccinated for the first time, 0.16 (maximum 0.22) and 0.25 (maximum 0.3) in 1/2

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USSR

VASIL'YEVA, O. A., et al., Laboratornoye Delo, No 12, 1972, pp 730-732

those revaccinated at 8 and 15. In the control (nonvaccinated) group, the INI varied from 0.02 to 0.08.

2/2

USSR

UDC 669.295.053.2

ABRAMOV, D. S., SANDLER, R. A., ~~SHIPULINA, R. Ye.~~

"Interaction of Titanium Tetrachloride with Wastes of Titanium Alloys in Salt Media of Alkali and Alkali Earth Metal Chlorides"

Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works of All-Union Scientific Research and Planning Institute for the Aluminum, Magnesium and Electrode Industry], No 79, 1971, pp 119-126, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G257 by G. Svodtseva).

Translation: Thermodynamic calculations are presented for the reactions occurring during the interaction of  $TiCl_4$  with Ti-alloy wastes. It is thermodynamically most probable that Zr, Ti, Al, Mn and V will go over to the melt. Laboratory studies have shown that when Ti is extracted from wastes of alloys, 70% of the alloying elements go over into the melt in the following quantities (% of initial content in alloys): Al 45, Mn 60, Zr 40-50, V 35, Cr 10-15, Sn 6-8, Mo 2. The salt media has some influence on the transition of Zr, Cr and Sn to the melt. The degree of extraction of these metals in the medium of spent electrolyte is somewhat less than in a medium of NaCl. Al goes over to a Ti-containing melt in practically equal quantities in both media. The degree of 1/2

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USSR

UDC 669.295.053.2

ABRAMOV, D. S., SANDLER, R. A., SHIPULINA, R. Ye., Tr. Vses. N.-i. i Proekt.  
Inta Alyumin., Magn. i Elektrod. Prom-sti, No 79, 1971, pp 119-126.

extraction of Al increases with increasing content of Al in the melt and with  
increasing  $TiCl_4$ : Ti ratio. 3 Figures; 5 Biblio. Refs.

2/2

USSR

UDC: 621.378.524+621.385.27.81

LEONOV, G. S., MANANOV, R. G., TARKHOV, Yu. K., SHIPULO, G. P.  
"Effective Pumping of a Continuous Garnet Laser by a Water  
Cooled Metal Halide Lamp"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972,  
pp 112-115

Abstract: A design is proposed for a water-cooled metal halide flash tube. The spectral characteristics of lamps filled with Xe + Hg + NaI + RbI and with Xe + Hg + NaI + TlI are studied. Nd:YAG laser emission power is measured as a function of pumping for lamps with different fillers. It is shown that the differential efficiency of a laser when pumped by a tube with sodium and rubidium iodides added is 3.5 times as high as when a xenon tube is used, and 1.5 times as high as when a krypton tube is used for pumping. Four illustrations, bibliography of seven titles.

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USSR

ALEKSANDROV, V. I., VORON'KO, YU. K., MIKHALEVICH, V. G., OSIKO, V. V.,  
PROKHOROV, A. M., Academician, TATARINTSEV, V. M., UDOVENCHIK, V. T., and  
SHIPULO, G. P., Physics Institute imeni P. N. Lebedev, USSR Academy of  
Sciences, Moscow

"Spectroscopic Properties and Generation of  $\text{Nd}^{3+}$  in Crystals of  $\text{ZnO}_2$  and  $\text{HfO}_2$ "

Doklady Akademii Nauk SSSR, Vol 199, No 6, 1971, pp 1282-1283

Abstract: The spectroscopic properties of  $\text{Nd}^{3+}$  are known in various crystals and glasses. Materials such as crystals of  $\text{V}_3\text{Al}_5\text{O}_{12}$  and silicate glasses activated with neodymium have been widely used in lasers. The authors of this article first describe the spectroscopic properties and generation of  $\text{Nd}^{3+}$  in cubic crystals of  $\text{ZrO}_2$  and  $\text{HfO}_2$ . These materials have a fluorite type crystal lattice in which the  $\text{Nd}^{3+}$  ions replace the tetravalent ions of zirconium or hafnium. In addition to the  $\text{Nd}^{3+}$  the crystals contained impurities of  $\text{CaO}$  or  $\text{V}_2\text{O}_3$  for the purpose of stabilizing the cubic structure of the  $\text{ZrO}_2$  and  $\text{HfO}_2$ . The authors describe the experiment and give 1 figure and 1 table to illustrate the results. The figure graphically shows the optical spectra of  $\text{HfO}_2\text{-Nd}^{3+}$  crystals, including the spectrum of absorption, the

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USSR

ALEKSANDROV, V. I., et al., Doklady Akademii Nauk SSSR, Vol 199, No 6, 1971,  
pp 1282-1283

absorption group, and the spectrum of luminescence transition. The table  
gives two structural types of crystals with their properties. The article  
contains 1 figure, 1 table, and 9 bibliographic entries.

2/2



USSR

UDC: None

ZLENKO, A. A., PROKHOROV, A. M., SYCHUGOV, V. A., and SHIFULO, G. P.

"Exciting  $\text{LaF}_3\text{-Nd}^{3+}$  Crystals with Monochromatic Light"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 59, No 9, 1970, pp 785-789

Abstract: The relaxation time of the particles from the 0.53  $\mu$  absorption band of  $\text{Nd}^{3+}$  ions at the  $^4\text{F}_3/2$  level is determined, and the transverse cross section of the induced radiation in  $\text{LaF}_3\text{-Nd}^{3+}$  crystals is measured in lasers pumped with monochromatic light. The determination of this time is important since it has a definite effect on the operation of the laser. The results of a numerical solution of the problem of exciting laser oscillations in a four-level system with the relaxation time taken into account, pumped by a light pulse lasting 50 ns, are obtained. These results are found from a curve showing the laser radiation as a function of time, through the use of a computer. Formulas are derived to determine the relaxation time from measurements of the time interval between the first two peaks of the laser radiation curve after the pumping pulse. The authors express their gratitude to M. V. Dmitruk and to V. V. Osiko for the  $\text{LaF}_3\text{-Nd}^{3+}$  crystals, and to Ye. M. Dianov for his comments and discussion.

1/1

USSR

ASKAR'YAN, G. A., MIKHALVICH, V. G., SHIPULO, G. P., Physics Institute imeni P. N. Lebedev, Academy of Sciences, USSR

"Nonlinear Scattering and Self-Focussing of Intense Light by Perturbations of the Medium Near Absorbing Inhomogeneities"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 4, 1971, pp 1270-1272

Abstract: A study is made of the refraction of intense light by a halo originating in the transparent medium surrounding an absorbing inhomogeneity. A new effect is observed: namely, self-focussing of the light by an inhomogeneity in the medium. Experiments were conducted in the beam of a continuous yttrium-garnet (YAG -- ND) laser. For visualization of the process, a beam of red light from a helium-neon laser was added to the invisible beam. Scattering and shuttering of the beam, increasing in time due to an absorbing particle in water or in ploxiglass, as well as self-focussing in various types of optical glass. The dynamics of the process are investigated by means of motion-picture color photography. Note is taken of the practical significance of the observed effects of nonlinear light scattering by halos near inhomogeneities in natural media (water, air) and in optical and laser elements (platinum particles in  
1/2

USSR

ASKAR'YAN, G. A., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,  
No 4, 1971, pp 1270-1272

neodymium glass, carbon particles in a ruby, particles in liquid media, etc.)  
which limit the transmission of high intensities. These effects may also be  
used for the pulsed scattering, reflection, or modulation of intense light.  
3 figures. 6 bibliographic entries.

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1/2 044 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--LASER EXCITATION OF THE PHOSPHORESCENCE OF ORGANIC MOLECULES -U-

AUTHOR--(02)-SHIGORIN, V.D., SHIPULO, G.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 331-3

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--LASER EXCITATION, PHOSPHORESCENCE, RUBY LASER, ANTHRAQUINONE,  
AROMATIC KETONE, ORGANIC OXIDE, QUINONE, SALICYLIC ACID, PHENANTHRENE,  
PHOTON, HALOGENATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1240

STEP NO--UR/0368/70/012/002/0331/0333

CIRC ACCESSION NO--AP0116702

UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116702

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING RUBYLASER EXCITATION, THE LIFETIMES ( $\tau$ ) OF THE LOWEST TRIPLET STATES (T SUB1) OF 9,10,ANTHRAQUINONE (I), 1,4,NAPHTHOQUINONE (II), PHENANTHRENEQUINONE (III), PH SUB2 CO (IV), N,ETHYLACRIDONE (V), PH SUB3 N (VI), PH SUB3 CH (VII), CRYSTAL VIOLET (VIII) AND ITS LEUCO BASE (IX), DIPHENYLENE OXIDE (X), PHENANTHRENE (XI), SALICYLIC ACID (XII), AND BZOH (XIII) WERE DETD. THE  $\tau$  WERE SIMILAR TO 10 PRIME NEGATIVE2-10 PRIME NEGATIVE3 SEC WITH T SUB1 OF THE N PI SEXTILE TYPE (I-IV) AND IS GREATER THAN 1 SEC WITH T SUB1 OF PI PI SEXTILE TYPE (V-XIII). WITH POLYCRYST. I, 2,CHLORO,3,BROMOANTHRAQUINONE, AND V A QUADRATIC DEPENDENCE OF THE PHOSPHORESCENCE INTENSITY ON THE LASER LIGHT INTENSITY WAS OBSD. INDICATING A 2 PHOTON EXCITATION MECHANISM.

UNCLASSIFIED

Acc. Nr: **AP0043763**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 3, pp 817-820

ON THE RELAXATION RATE FROM THE LOWER LASER LEVEL

V. A. Sychugov, G. P. Shipilo

The ion relaxation rate from the lower laser level in four-level systems in investigated. The lower limit of the rate for  $\text{LaF}_3:\text{Nd}^{3+}$  is measured and is found to be  $5 \cdot 10^4 \text{ sec}^{-1}$ .

REEL/FRAME  
19770170

USSR

UDC 621.396.69:621.319.4

MAKSIMOVA, M. F., TKACHENKO, L. N., SHIPUNOVA, N. V.

"Accelerated Method of Selecting Paper Capacitors with Improved Reliability"

Elektron. tekhnika. Nauchno-tekhn. sh. Upr. kachestvom i standardiz. (Electronic Engineering. Scientific and Technical Collection. Quality Control and Standardization), 1970, vyp. 3, pp 78-79 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4V422)

Translation: The expediency of single checking of paper capacitors at increased DC voltage is demonstrated in an experiment at the Epsilon Plant.

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USSR

UDC 632.95

SHIRANKOV, D. F., RUDAVSKIY, V. P., and KOVAL', A. A.

"A Herbicide"

USSR Author's Certificate No 337111, filed 17 Aug 70, published 1 Jun 72  
(from RZh-Khimiya, No 10, May 73, Abstract No 10N607F by T. Ya. Ogibina)

Translation: It is proposed that alkyl ethers of N-dialkyl phosphono- $\alpha, \alpha'$ -dichloroiminocarboxylic acids of the formula  $RCCl_2C(OR')=NP(O)(OR'')OR'''$  (I)

(R = alkyl- $C_1-C_3$ , R', R'', R''' = Me, Et, Pr or Bu) made on the basis of plentiful raw material (nitriles of carboxylic acids,  $PCl_3$ ,  $Cl_2$  and alcohols) be used as a herbicide. The tested substances are used in the form of acetone solutions in a concentration of 0.1, 0.5, and 1%. Examples are given of testing of herbicidal activity on mono- and dicotyledons with application to the soil and spraying. Germinating capacity of seeds is determined, and the length of the stalk and root is measured. The maximum effect was achieved by spraying the plants. The nature of the action of the chemicals is totally destructive. Compounds I (R = Et, R' = R'' = R''' = Bu) and I (R = Pr, R', = R'' = R''' = Bu) are destructive of monocotyledons in a dose of 1 kg/ha.

1/1



USSR

UDC 632.95

SHIRANKOV, D. F., ABRAMOVA, K. A., STOLPER, A. L., and KHASKIN, I. G.

"A Herbicide"

USSR Authors' Certificate No 268798, filed 18 Nov 68, published 16 Jul 70  
(from RZh-Khimiya, No 3, 10 Feb 71, Abstract No 3N615 P)

Translation: Butyl ester of dichloroacetic acid introduced into the soil before planting in a dose of 10 kg/ha is proposed as a herbicide for controlling monocotyledonous weeds in fields of dicotyledonous plants (sunflowers, radish, buckwheat, mustard, beets). This herbicide reduced the green mass of monocotyledons by 53-100 percent. Although it is not as effective as sodium trichloroacetate, this weed-killer has the advantage of being safe for the crops mentioned above.

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USSR

UDC 632.954

RUDAVSKIY, V. G., KUCHEROVA, M. N., SHIRANKOV, D. F., and MAKOVETSKIY, P. S.  
Ukrainian Agricultural Academy

"Herbicidal Activity of Some Halocarboxylic Acid Derivatives (Brief Communication)"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 6, 1971, p 53

Abstract: The authors prepared some halocarboxylic acid derivatives and studied their herbicidal activity under hothouse conditions. The herbicidal activity of the compounds are graded visually according to a 10-point system (0: no inhibition; 1-2: very weak inhibition; 3-4: weak inhibition; 5: medium inhibition; 6-7: strong inhibition; 8-9: very strong inhibition; 10: total plant destruction). The article tabulates the results.

1/1

USSR

UDC 632.95

SHIRANKOV, D. F., SHEVCHENKO, V. I., KOVAL', A. A., and RUDAVSKIY, V. P.,  
Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Herbicide"

USSR Authors' Certificate No 246960, filed 11 Apr 67, published 13 Jan 70  
(from *kZh-Khimiya*, No 20 (II), 25 Oct 70, Abstract No 20 N626P by S. LYUBANSKAYA)

Translation: Compounds of the general formula  $X_3CC(OR) = NP(O)(OR)_2$  (I; X = Cl, F; R = C<sub>1</sub>—C<sub>5</sub>-alkyl) did not act on plants when applied to the soil. When sprayed on plants in a dose of 5-10 kg/ha, I's (R = Pr, n-C<sub>5</sub>H<sub>11</sub>; X = Cl and R = Bu, X = F) suppress radishes and buckwheat 70-85% and do not harm oats and wheat.

1/1

USSR

UDC 632.95

SHIRANKOV, D. F., RUDNEV, G. K., and KHASKIN, I. G.

"A Herbicide"

USSR Authors' Certificate No 249845, filed 19 Apr 68, published 4 Jan 70  
(from Referativnyy Zhurnal Khimii, No 17, 10 Sept 70, Abstract No 17 1641 P)

Translation: As a herbicide for combatting dicotyledonous weeds in cereal crops, use is made of  $\alpha, \alpha, \beta, \beta$ -tetrachloro- $\beta$ -phenylpropionic aldehyde, which acts in a dose of 10 kg/ha when applied to vegetation.

N. A. Gruzinskaya

1/1

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USSR

UDC 632.95

ABRAMOVA, K. A., KHASKIN, I. G., RUDNEV, G. K., SHIRANKOV, D. E.,  
SHOMOVA, YE. A., GRIB, O. K., KUPRINA, ZH. S.

"Pesticide"

USSR Author's Certificate No 252756, filed 10 Jul 68, published  
12 Feb 70 (from RZh-Khimiya, No 18, 25 Sep 70, Abstract No 18N665 P,  
by P. V. Popov)

Translation: Esters of alpha-chlorocinnamic acid with general  
formula  $\text{PhCH=CClC(O)OR}$  (I) ( $R = \text{Me, Et, or Ph}$ ) exhibit fungicidal  
and herbicidal properties. In toxicological experiments I ( $R = \text{Me}$   
or Et) suppressed development of colonies of *Alternaria*, *Botrytis*,  
*Cladosporium*, *Penicillium*, *Rhizoctonia*, and *Verticillium* on potato-  
dextrose agar in most cases no less vigorously than did figon and  
TMTD /tetramethylthiuram disulfide/. As herbicides, I ( $R = \text{Me or Ph}$ )  
act selectively on dicotyledonous plants (beans, sunflower,  
buckwheat, beet, and mustard); winter wheat and oats of the cereal  
crops are resistant, corn is the most sensitive.

1/1

USSR

UDC 632.95

ABRAMOVA, K. A., ~~SHIRANKOV, D. F.~~, NIZHNIKOVA, YE. YE., and RUDAVSKIY, V. P.

"A Herbicide"

USSR Authors' Certificate No 301141, Cl. A 01 n 9/02, filed 12 May 70, published 2 Dec 71 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N537P by T. A. BELYAYEVA)

Translation: The authors suggest the application as herbicides of alkyl esters of chlorinated fatty acids with the formula  $RCH_2CCl_2COOR'$  (I)  $R = MeC_6H_4$ ,  $MeOC_6H_4$ ,  $ClC_6H_4$ ,  $BrC_6H_4$ ,  $NO_2C_6H_4$ ,  $R' = Me, Et$ ), which are obtained by the reaction of nitriles of aliphatic-aromatic acids and alcohols. I's, inactive when applied to the soil, displayed high herbicidal activity when sprayed on the green mass of vegetation. I ( $R = p-MeOC_6H_4$ ,  $R' = Me$ ) displays selectivity for monocotyledonous crops and beans.

1/1

- 50 -

USSR

UDC: 681.325.65

BABALOVA, I. F., POPOV, Yu. A., SHIRANOVA, S. F.

"Problems of Calculating the Structural Reliability of Magnetic Logical Elements Made of Branched Cores"

Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radio Electronic Equipment. No 1), Moscow, 1970, pp 49-54 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 9, Sep 70, Abstract No 9B255)

Translation: This article contains an investigation of problems of designing a magnetic logical element permitting realization of all the functions of the algebra of logic or two variables. The logical functions are realized in two cycles: the information recording cycle (magnetization cycle) and the information reading cycle, during which the demagnetizing current is fed. A procedure is presented for designing a magnetic logical element, and the possibility of optimizing its parameters is investigated. A reliability function is introduced the solution of which is realized by iterations. For this purpose, the problem of optimization, for which the algorithm and block diagram of the solution are developed, is formulated. There are two illustrations and a four-entry bibliography.

1/1

USSR

UDC 595.775 Ceratophyllus sp. n.

DARSKAYA, N. F. and ~~SHIRANOVICH, P. I.~~ Scientific Research Antiplague Institute  
of the Caucasus and Transcaucasia

"A New Flea Species of the Genus Ceratophyllus (Siphonaptera, Ceratophyllidae)  
From the Caspian Lowland"

Moscow, Zoologicheskii Zhurnal, No 12, 1971, pp 1,827-1,834

Abstract: Ceratophyllus (ceratophyllus) igii Darskaja et Schiranovitch sp. n. was found in uninhabited burrows of foxes and rodents in Krasnoyarsk and other delta regions of Astrakhanskaya Oblast and in southern Kalmyk ASSR. C. igii (name composed of the initials of I. G. Ioff, an authority on fleas and plague) should be assigned to the subgenus Ceratophyllus s. str. because of the large number of teeth in the pronotal comb. In structure of the female genital ducts and spermatheca it resembles species from the C. garei group. In shape of the modified abdominal segments of the male it is similar to C. diffinis Jord (North America) and, to a lesser extent, C. garei Moths. (Holarctic) and C. frigoris Darsk. (Caucasus). It differs from species of the subgenus Ceratophyllus s. str. in lacking spicules on the inner surface of the VIII male tergite and in having a shortened and weak VIII sternite. These features as well as the general configuration of the clasper, shape of the spermatheca, and structure of the female genital ducts are strikingly like those of C.

1/2



USSR

DARSKAYA, N. F., and SHIRANOVICH, P. I., Zoologicheskii Zhurnal, No 12, 1971, pp 1,827-1,834

(*Monopsyllus*) *sciurorum* Schr. The new species is evidently a transitional form between the subgenera *Ceratophyllus* s. str. and *Monopsyllus* s. l. Its hosts are believed to be ducks of the genus *Tadorna* which often nest in holes abandoned by mammals.

2/2

USSR

UDC 911.3.616.981.452(470.6)

SHIRANOVICH, P. I.

"The Anthropozoonosis-Producing Effect on Plague Zones in Natural Caspian Foci"

V sb. 5-ya Mezhevuz. zoogeogr. konferentsiya "Vliyaniye antropogen. faktorov na formir. zoogeogr. kompleksov" Ch. I. Fifth Joint Higher Education Institution Zoogeographic Conference on the Effect of Anthropogenic Factors on the Formation of Zoogeographic Complexes. Part I - collection of works, Kazan, 1970, pp 129-131 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.119 by L. Naletova)

Translation: The Northwest Caspian plague focus was formed in the second half of the 19th century. Extension of boundaries of the focus is associated with man's mastery of the many areas of virgin lands. The development of the Volga-Ural plague focus (in the first half of the 20th century) is related to the increase in small gerbils populating the re-emerging biotopes resulting from cattle slaughter. The present regression of plague in these areas is due (aside from the disappearance of rodents and increased pasture land) to a certain natural phenomena (climatic cycles, changes in water content of the soil, etc) as well as to changes in pasture use.

1/1

1/2 014  
UNCLASSIFIED  
PROCESSING DATE--11SEP70  
TITLE--FORMATION OF THE THETA PHASE IN THE AGING OF A HIGH RESISTANCE  
ALLOY BASED ON A NICKEL MANGANESE INTERMETALLIC COMPOUND -U-  
AUTHOR--BOKSHITSKY, I.YA., YELYUTIN, O.P., SHIRENIN, V.I., USIKOV, M.P.  
COUNTRY OF INFO--USSR  
SOURCE--UKRAIN. FIZ. ZHUR. JAN. 1970, 15, (1), 114-117  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ELECTRIC RESISTANCE METAL AGING, ALLOY PHASE TRANSFORMATION,  
INTERMETALLIC COMPOUND, IRON ALLOY, VANADIUM ALLOY, NICKEL COMPOUND,  
MANGANESE COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/1203  
STEP NO--UR/0185/70/015/001/0114/0117  
CIRC ACCESSION NO--AP0107679  
UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0107679

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CHANGES ASSOCIATED WITH AGEING AT 350DEGREESC ON THE STURCTURE AND PROPERTIES OF THE HIGH RESISTANCE NiMn-V-FE (QUASI TERNARY) ALLOY NG45F WAS STUDIED, WITH SPECIAL REF. TO THE FORMATION OF THE THETA PHASE. THE ELECTRICAL RESISTANCE WAS MEASURED AS A FUNCTION TIME AND CORRELATED WITH THE PHASE COMPOSITION, AS REVEALED BY X RAY ANALYSIS. THE RESISTANCE REACHED A MAXIMUM AFTER 5-6 H, DEPENDING ON THE PREVIOUS HEAT TREATMENT. THE THETA PHASE HAD A STRUCTURE WITH THE CUAU I TYPE OF ORDERING.

UNCLASSIFIED